Thermodynamic Analysis of Thermoelectric Device

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Abstract

In this work, the thermoelectric diode is considered and electronic as well as Carnot efficiency of the device are computed. It is found that increasing emitter temperature increases the Carnot efficiency of the device; in which case, diode power intensity and electronic efficiency reduce. The second law efficiency increases with emitter to collector temperature ratio and reduces with increasing collector temperature due to increase in collector current flow.